

Wind Power Inverter
WINDY BOY 3300 / 3800
User Manual

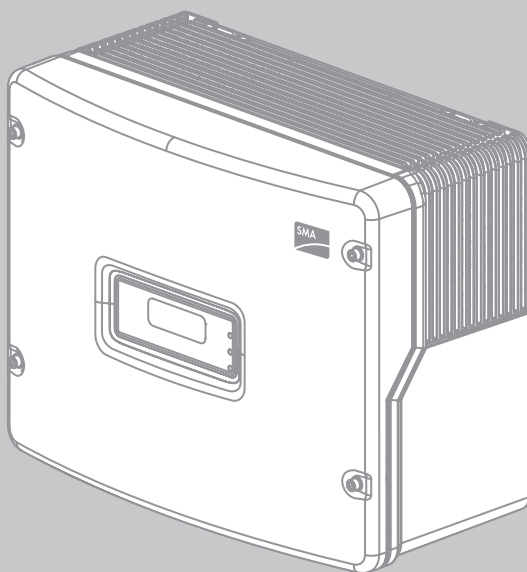


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1 Information on this Manual

1.1 Validity

This manual applies to the following device types:

- WB 3300
- WB 3300-IT
- WB 3300-11
- WB 3800
- WB 3800-IT
- WB 3800-11

1.2 Target Audience

This manual is intended for the operator.






1.3 Additional Information

You will find additional information on the device-specific technical data in the installation manual provided.

You will find additional information on particular topics (e.g. description of the operating parameters) in the download area at www.SMA.de/en.

1.4 Symbols Used

The following types of safety precautions and general information are used in this manual:

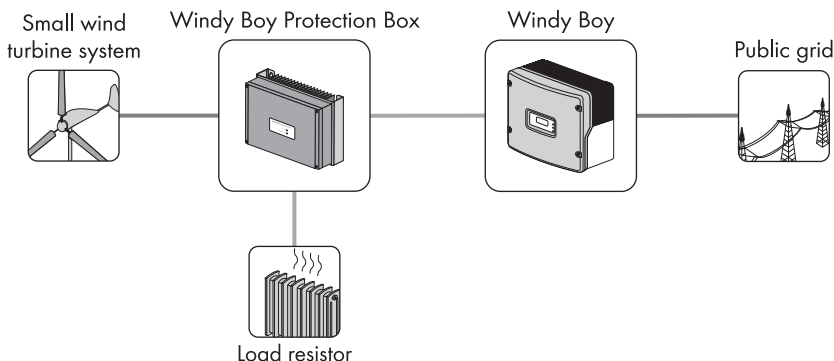
	DANGER! DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.
	WARNING! WARNING indicates a safety precaution which, if not avoided, could result in death or serious injury.
	CAUTION! CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
	CAUTION! NOTICE indicates a situation which, if not avoided, could result in property damage.
	Information Information provides valuable hints on the optimum installation and operation of the product.

2 Safety

2.1 Intended Use

The Windy Boy is a wind energy inverter which converts the rectified current of a small wind turbine system into AC current and feeds this energy into the electricity grid, domestic grid or the Sunny Island system.

Principle of a small wind turbine system with a Windy Boy



Furthermore, the Windy Boy can be used as an inverter for power conversion units based on permanent magnet generators (hydro-electric systems, combined heat and power plants, diesel generators, etc.). The manufacturer of the small wind turbine system or generator must have approved his plant for operation with this Windy Boy.

For safety reasons, it is not permitted to modify the product or install components that are not explicitly recommended or distributed by SMA Solar Technology AG.

When designing the PV plant, ensure that the permitted operating range of all components is complied with at all times. Moreover, make sure that appropriate protective measures are in place to ensure that the maximum permissible input voltage is not exceeded. SMA Solar Technology AG offers you the requisite components, such as the Windy Boy Protection Box (overvoltage protection for wind power inverters, including the rectifier).

2.2 Safety Precautions

**DANGER!**

Electric shock caused by high voltage in the inverter

Even when no external voltage is connected, there may still be high voltages present in the inverter. The following work may only be carried out by trained, electrically qualified personnel:

- Electrical installation
- Repairs
- Modifications

**CAUTION!**

Risk of burns through contact with the enclosure during operation

- Only touch the enclosure lid and the display during operation.

**CAUTION!**






Damage to the inverter through overvoltage, if the yellow LED flashes 4 times.

- Inform your installer immediately if the yellow LED starts to flash and the following display message appears:

!PU-Overvoltage!
!DISCONNECT DC!

2.3 Explanation of Symbols











2.3.1 Symbols on the Inverter

Symbol	Explanation
	Operation display
	Earth fault or varistor defective Please inform your installer.
	An error has occurred. Inform your installer immediately .
	<p>You can operate the display by tapping the enclosure lid.</p> <ul style="list-style-type: none"> • Single tap: the backlight switches on or the display scrolls one message further. • Double tap in quick succession*: The inverter displays the device type, the firmware version and the configured country standard (see Section 4.2 "Display Messages during Operation" (page 12)).
	<p>QR-Code®** for SMA bonus programme</p> <p>You will find information on the SMA bonus programme at www.SMA-Bonus.com.</p>

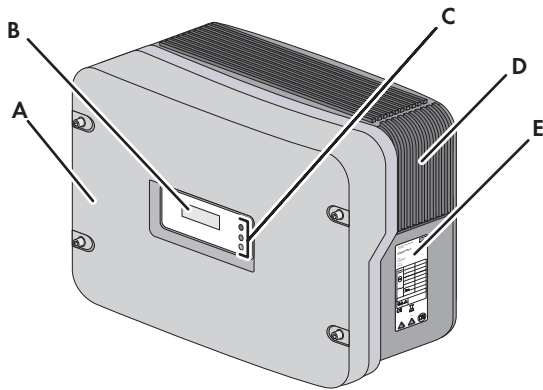
* This function is valid as of firmware version 4.00.

** QR-Code is a registered trademark of DENSO WAVE INCORPORATED.

2.3.2 Symbols on the Type Label

Symbol	Explanation
	Beware of dangerous electrical voltage. The inverter operates at high voltages. All work on the inverter may only be carried out by a trained, electrically qualified person.
	Beware of hot surface. The inverter can become hot during operation. Avoid contact during operation.
	Observe all documentation that accompanies the inverter.
	The inverter must not be disposed of together with the household waste. Further disposal information can be found in the enclosed installation manual.
	CE marking The inverter complies with the requirements of the applicable EC directives.
	The inverter has a transformer.
	Direct current (DC)
	Alternating current (AC)
IP65	Degree of protection IP65 The inverter is protected against dust intrusion and water jets from any angle.
	The inverter is suitable for outdoor installation.
	RAL quality mark for solar products The inverter complies with the requirements of the German Institute for Quality Assurance and Labelling.

3 Product Overview



Position	Designation
A	Enclosure lid
B	Display
C	LEDs Green LED = Operation Red LED = Earth fault or varistor defective Yellow LED = Fault
D	Ventilation grid
E	Type label for the identification of the inverter via the serial number (Serial No.).

4 Display

4.1 Operation

The display shows the current values of your plant. The displayed values are updated every 5 seconds.

You can operate the display by tapping the enclosure lid.

Single tap:

The backlight is switched on. After two minutes, the backlight switches off automatically.

Double tap in quick succession (valid from firmware version 4.00):

The inverter successively displays the device type, the firmware version and the configured country standard.

4.2 Display Messages during Operation

After commissioning, the inverter successively displays the device type, the firmware version and the configured country standard. If you want to view the display messages of the startup phase again while in normal operation, tap on the enclosure lid twice in quick succession (from firmware version 4.00).

Display message	Description
<div>SB xxx WRxxx</div>	Inverter device type
<div>Sunny Boy xxx WRxx</div>	
<div>BFR Version x.xx SRR Version x.xx</div>	Firmware version of internal processors
<div>VDE-AR-N4105</div>	Default country standard in the inverter, example: "VDE-AR-N4105"

Upon error-free connection of the inverter to the electricity grid, after approximately one minute, the display starts alternating between the messages shown below. Each message appears for five seconds, and then the cycle restarts from the beginning.

Display message	Description
<div>E-today 0Wh Mode Turbine</div>	Energy generated on the current day Status message "Turbine"*
<div>Status Turbine</div>	Status message "Turbine"**
<div>Pac 903W Uac 230V</div>	Current feed-in capacity AC line voltage of the inverter:
<div>Qac 200VAR PF 0.987</div>	After a further five seconds or after tapping, the current values of the reactive power Qac and of the displacement power factor cos φ (PF) are displayed. **
<div>E-total 0Wh h-total 0h</div>	Total amount of energy fed in Total number of operating hours in feed-in operation

* Applicable for WB 3300 / WB 3300-IT / WB 3800 / WB 3800-IT

** Applicable for WB 3300-11 / WB 3800-11

4.3 Display Messages during a Disturbance





















In the event of a disturbance, the inverter displays the status "Disturbance" and an error message. Please inform your installer. The following messages will be generated:

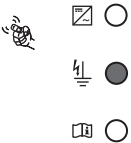


Display message	Description
E-today 0Wh Mode Disturbance	Energy generated on the current day Status message "Disturbance"
Disturbance Uac-Bfr	Operating state Error message
at: 261V present: 245V	Measured value at the time of the disturbance Current measured value (only displayed if a measured value is responsible for the disturbance)

4.4 DC Overvoltage

Display message	Description
!PU-Overvoltage! !DISCONNECT DC!	The DC input voltage connected to the inverter is too high. Please inform your installer immediately .

5 LED Signals

Status	Description	
   	All LEDs are on	The inverter is initializing.
   	All LEDs are off	The DC input voltage at the inverter is too low for feed-in.
   	All LEDs are flashing	The inverter is in the startup phase.
   	Green LED is on	The inverter is feeding into the electricity grid.
   	Green LED is flashing	This flashing can be caused by: <ul style="list-style-type: none">• The inverter is monitoring the electricity grid and is waiting for the DC voltage to reach a defined limit so that it can begin feeding the into the network.• Operation interrupted.• Power limitation in the inverter.

Status		Description
	Red LED is on	An earth fault has occurred or one of the thermally monitored varistors on the DC input side is defective. Please inform your installer.
	Yellow LED is on	The inverter is in the operating state "Operation permanently disabled". This can have several causes. Please inform your installer.
	Yellow LED is flashing	This indicates a disturbance. This can have several causes. Please inform your installer.

6 Visual Inspection, Maintenance and Cleaning

Visual inspection

Check the inverter and cables for any signs of external damage. Contact your installer if you find any damage. Do not perform any repair work yourself.

Maintenance and cleaning



CAUTION!

Damage to the display by use of cleaning agents

- If the inverter is dirty, clean the enclosure lid, the display and the LEDs with clear water and a cloth only.

7 Troubleshooting

7.1 Status Messages

Your inverter can be in various operating states. These are displayed as status messages, which can vary according to the type of communication.

Message	Description
Derating	Overtemperature in the inverter. The inverter reduces its power to prevent overheating. To avoid unnecessary yield losses, check the plant configuration. Please inform your installer.
Error	An error has been detected. Please inform your installer.
Grid monitoring	Grid monitoring This message appears during the startup phase before the inverter is connected to the electricity grid, and following an error.
Off Grid	The inverter is in "Island" mode. This mode is specially designed for operation in an off-grid system.
Offset	Offset adjustment of the measurement electronics.
Stop	Operation interrupted.
Turbine	The inverter is in the operating state "Turbine". This mode is specially designed for operation in small wind turbine systems.
V-Const	Constant voltage mode.
Waiting	The conditions for connecting are not (yet) fulfilled.
Warning/Disturbance	Disturbance This message appears for safety reasons and ensures that the inverter does not connect to the electricity grid. Please inform your installer.

7.2 Measurement Channels

If your inverter is equipped with a communication product, numerous measurement channels and messages can be transmitted for diagnostics.

Measurement channel	Description
Error	Identification of the present disturbance/error
E-total	Total amount of energy fed in
Event-Cnt	Number of events that have occurred
Fac	Power frequency
h-On	Total operating hours
h-total	Total number of operating hours in feed-in operation
Iac	Line current
Ipv	Direct current
Pac	Generated AC power
Power On	Total number of grid connections
Riso	Insulation resistance of the small wind turbine system
Serial number	Inverter serial number
Status	Display of the current operating state
Vac	Line voltage
Vpv	DC input voltage
Vpv-Set	DC target voltage

8 Glossary

AC

Abbreviation for "Alternating Current".

DC

Abbreviation for "Direct Current".

Derating

A controlled reduction in performance, usually dependent on component temperatures.

Varistor

The varistors protect the electronics in the inverter from atmospherically coupled energy peaks, such as those that can occur when lightning strikes nearby.

9 Contact

If you have technical problems, please contact your installer first. The following information is required in order to provide you with the necessary assistance:

- Inverter device type
- Inverter serial number
- Type of connected small wind turbine system
- Blink code or display message of the inverter
- Optional equipment (e.g. communication products)

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